Before the
National Telecommunications and Information Administration
Washington DC 20230

United States Spectrum Management Policy for the 21st Century	))	Docket No. 040127027-4027-01

COMMENTS OF LUCENT TECHNOLOGIES

Lucent Technologies (Lucent) submits the following comments to the NTIA's Notice of Inquiry (NOI) on the United States Spectrum Management Policy for the 21st Century. The NOI seeks comments on a broad range of issues, including the spectrum management system, incentives for achieving more efficient use of spectrum, tools to streamline the deployment of new and expanded services and technologies, and methods to address the spectrum needs of homeland security. Lucent, a manufacturer of telecommunications infrastructure, limits its comments to the issues of spectrum efficiency and the need for spectrum supportive of homeland security needs.

The NOI's second objective relates to policy changes that might be implemented to achieve more efficient and beneficial use of spectrum. The NTIA seeks comment on the various definitions of spectral efficiency and how they might be used in developing spectrum policy. Lucent suggests that spectrum policy should not explicitly include a threshold based upon an efficiency metric that must be met or exceeded. Although measures of spectral efficiency are defined for digital radio technologies (e.g., bits/sec/Hz), and efficiency measures could be developed to quantify spectrum usage, such parameters may not be reflective of the specific needs of a given wireless application. Indeed, as implied in the NOI, public safety spectrum may not be in use continuously, but any attempt to better use this frequency space through sharing must be dependent upon the ability of a supplemental user to relinquish the space to provide instant, reliable access for the primary public safety use, whenever its demanded.

Further, requirements on spectral efficiency of radio technologies are best determined by market place decisions, which typically will result in the use of the best available technology for the given application, required throughput, and projected traffic demand. Such decisions have seen the spectral efficiency of radio technology used in Commercial Mobile Radio Service (CMRS) spectrum increase approximately thirty times over the life of commercial wireless service. Even if the licensee/user has not paid for its spectrum and does not therefore have an economic incentive to use its resource in the most efficient manner, the need to obtain the best service (e.g., data rate), with the most reliable and interference free operation, will likely drive the licensee to the use of ever more efficient technology.

Lucent believes that the FCC's current policy of regulatory flexibility, especially in the area of technology neutrality, has supported the efficient use of spectrum and the timely introduction of innovative services. Moreover, the Commission's recent actions designed to expand the use of secondary markets should create additional opportunities for improved efficiency in spectrum use. These policies should, therefore, continue. The NTIA also requests comments on how the use of receiver performance standards could be employed to increase spectrum efficiency and minimize harmful interference. It is likely that the prescription of certain receiver characteristics (e.g., receiver selectivity) could improve performance under some interference conditions. Such standards, however, if developed, should not be regulatory mandates, but described by industry standards organizations and implemented on a voluntary basis. Further, any suggested performance characteristics should not be broadly defined, but oriented to specific service situations. Finally, the use of any receiver performance standards should not preclude the existing limits on transmitter power and out-of-band emissions, which act to limit the cause of potential interference. Rather, any limits on receiver performance, which attempt to mitigate degradation in the presence of interference, should be considered supplemental to the current transmitter focused interference considerations.

The NTIA, in the Fourth Objective identified in its NOI seeks comment on the means to address the critical spectrum resources that include the needs of homeland security and public safety. Lucent believes that spectrum needs for homeland security and public safety should be developed and managed by a single entity/agency. This entity, likely to be located either within the NTIA or FCC, would have the necessary oversight authority to collect information and coordinate the needs of federal, state, and local public safety agencies, including the need for interagency, interoperable communications. Moreover, it would interface with and solicit input from the Department of Homeland Security, who, if necessary, could initiate action to generate legislation that may be required to allocate additional spectrum for public safety/homeland security needs.

Lucent suggests that any allocation of spectrum to meet homeland security needs not preclude the use of available technologies. Specifically, such allocations should be of sufficient bandwidth to support the use of wideband systems, such as the third generation (3G) commercial systems available today. Third generation wireless technology already provides many of the capabilities public safety requires, including high speed data, interoperability, and a high level of security. This technology is used in a multitude of spectrum bands, worldwide, and could be designed to operate in any band that might be allocated for wideband technology for public safety services (e.g., additional spectrum in the 700 MHz band). The use of this technology would be highly cost effective as the broad availability of 3G wireless infrastructure would allow public safety/homeland security providers to enjoy the benefit of economies of scale.

Respectfully submitted,

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